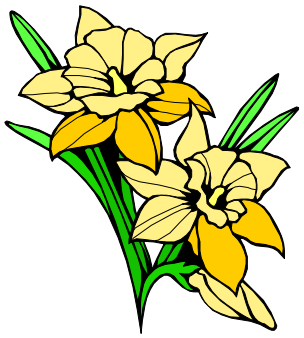
Level II: WIC Certification Program

ADOLESCENT NUTRITION MODULE



Colorado Department of Public Health & Environment
Nutrition Services/WIC Program

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Nutrition Services/WIC Program

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Objectives

After completing this module, the learner will be able to:

1. State two reasons why adequate nutrition during adolescence is important.

2. Identify the major factors affecting the food choices of adolescents.

3. Recognize the nutrient needs of pregnant adolescents.

4. Identify the typical eating patterns of teenagers and discuss their nutritional implications.

5. Identify the special nutritional concerns of adolescence and discuss appropriate suggestions in regards to dietary counseling:

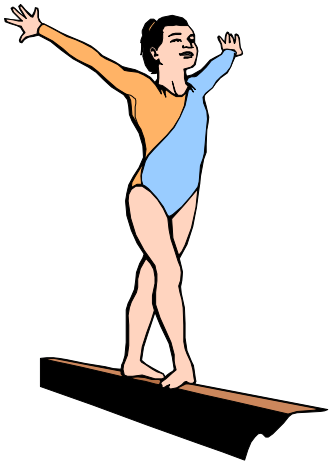
    a. Eating Disorders
    b. Substance Use and Abuse
    c. Athletics
    d. Acne
    e. Teen Pregnancy
    f. Teen Parenting

6. Identify guidelines for nutrition education counseling techniques appropriate for the adolescent age group.

The Importance of Nutrition During Adolescence

Today's adolescents are in poorer health in some respects than were their parents at the same age (Meredith & Dwyer, 1991). The diets of many teens fail to meet their nutrient needs and their fitness levels are declining (American Medical Association & American Dietetic Association, 1991).

The adolescent period represents a time of extremely rapid growth and development accompanied by an increased need for energy and nutrients. If an adequate diet is not consumed during the adolescent years, the body will not have the required building materials with which to reach its full potential for growth and development. Growth deficiencies caused by an inadequate diet in adolescence cannot be reversed later in adult life. In addition, an inadequate diet may prevent an adolescent from participating and succeeding in school, athletic, and social activities to the fullest extent.



Physical Growth and Puberty

The rate of growth during adolescence is extremely rapid. Body mass nearly doubles during the teenage "growth spurt," the phase of most rapid growth.

Until approximately nine years of age, girls and boys grow at the same rate, although males are somewhat taller and heavier than females. After the onset of puberty, differences in the rate and timing of growth result in differences in body composition between males and females.

The "growth spurt" of adolescence is a very important concept in understanding the nutrient requirements of teenagers. Because the body is growing so fast during this time, the need for nutrients (to build new tissues) is greatly increased. The timing and duration of the growth spurt directly influences the increased need for nutrients. There is a wide variability in timing and rates of growth to be expected in adolescence.

Pregnant and Parenting Teens

Since the mid-1980s nearly 500,000 children have been born to adolescent mothers each year (National Center for Health Statistics, 1988). Adolescent pregnancy is a major public health concern because of economic and social costs to the teen parent, to their children, and to society as a whole. Nearly two-thirds of adolescent mothers are unmarried and half drop out of high school (Children's Defense Fund, 1991). Four out of five children of adolescent mothers live below the poverty level (U.S. Bureau of the Census, 1987).

Adolescent pregnancy is a major public health concern because of economic and social costs to the teen parent, to their children and to society as a whole.

Health and Psychosocial Concerns

Occurring simultaneously, pregnancy and adolescence can place a teenage girl at high nutritional risk. Although there are variations from person to person, females usually attain physiological maturity about four years after the onset of menarche (when her period started) (Menken, 1981). Health risks are greatest if pregnancy occurs before the end of those four years.

Adolescent mothers are more likely than adult mothers to give birth to low birth weight and preterm infants. The higher risks associated with adolescent pregnancy are more likely the result of inadequate weight gain during pregnancy and inadequate prenatal care rather than low maternal age (Loris, Dewey & Poirier-Brode, 1985). Inadequate prenatal care is often linked to socioeconomic or legal barriers (U.S. Congress, Office of Technology Assessment, 1991c). Prenatal care may also be delayed because of denial of the pregnancy or lack of understanding about the importance of health care.

Responses to Self-Checks are found on pages 49-51.

QUESTIONS

1. Name 2 reasons why nutrition during adolescence is important.

   _____

   _____

True or False

2. _____ Adolescents are no longer growing; thus their nutrient requirements decrease greatly compared to childhood.

3. _____ Adolescence is a period of extremely rapid growth.

4. _____ All teenagers generally grow at exactly the same rate.

Factors Affecting Food Choices

Adolescents are undergoing not only physical maturation, but are experiencing tremendous social and psychological changes as well. This age group is extremely sensitive to peer acceptance. This desire to "fit in" or be accepted influences dietary habits. Adolescents may readily adopt altered eating patterns, such as a weight-reducing diet or a muscle-building diet, if these diets, or their desired outcome, are favored by peers.

Adolescence brings increased independence and freedom for teenagers to make their own decisions about what they will eat. Unfortunately, teenagers tend to be motivated in their food choices not by nutritional or health concerns but by factors of availability, sociability, and status. Put simply, teenagers eat what is available, what tastes good, and what their friends like to eat. In addition, lack of nutrition information, failure to understand the effect of present dietary habits on future health status, and busy school and social schedules may leave teenagers with inadequate time and motivation to prepare or eat the most nutritious foods.

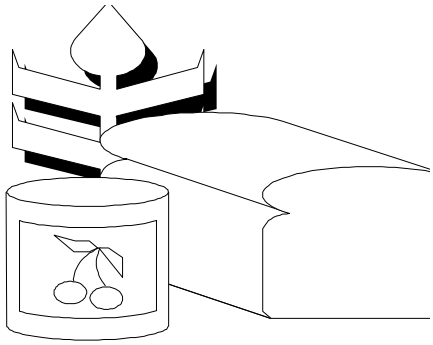
Mass media and advertising also exert a tremendous influence on the teen's diet. Advertising creates the image that certain foods are "fun," "glamorous," or "sexy," and unfortunately, these foods are generally not highly nutritious. Advertising and mass media also help to create certain standards for appearance (body shape, hairdo, skin condition, etc.) to which adolescents constantly compare themselves, usually with dissatisfaction. In attempting to conform to these standards of appearance, the adolescent may make inappropriate food choices and compromise optimal growth.

A further motivating factor for food choices is the teenage tendency to be preoccupied with their bodies. Teenagers are growing and changing rapidly and it is not uncommon for them to have a distorted and unrealistic image of their bodies. Female adolescents often diet to lose weight even when they are within or below the average range for body weight. A survey of females ages 14 to 18 reported that over 70 percent had dieted to lose weight and almost 40 percent were dieting at the time of the survey (Moses, Banilivy, & Lifshitz, 1986).

When giving nutritional counseling to teenagers or their parents,

it is wise to understand and respect teenager's motives for food choices and to appeal to these motives when attempting to alter food habits. For instance, it may be relevant and motivating to suggest to a 16-year-old girl that she eat more fresh fruits and vegetables because most are low in calories. Also mention the fact that these foods are good sources of vitamins A and C.

Nutritional Requirements



As a result of the tremendous growth that occurs during adolescence, the requirements for protein and energy are greatly increased above childhood requirements. The increased need for nutrients and energy in adolescence closely parallels the rates of growth, with the greatest need occurring during the period of most rapid growth. Since the timing and rate of growth are different for males and females, dietary recommendations after age 9 also are different. Tables I and II (on the following pages) present the Dietary Reference Intakes (1997-98) and Recommended Dietary Allowances (RDAs) (1989) for adolescents. As you will notice, the recommendations are differentiated according to age, with nutrient needs either increasing (e.g., folate) or decreasing (e.g., phosphorous).

Lifestyles and eating habits of many adolescents place them at increased risk for nutrient excesses and deficiency. National surveys document adolescents having inadequate intakes of folate; vitamins A, E, and B_6; and minerals calcium, iron, and zinc; as well as fiber. The surveys show excessive intakes of total fat, sodium, and cholesterol. Other surveys also indicate that American teens consume too much fat. Excess fat intake during the adolescent years may increase the risk for heart disease, obesity, and some cancers later in life.

Nutritional studies indicate a trend in the U.S. towards decreased consumption of fresh fruits and vegetables and whole grains and increased consumption of fast foods, convenience foods, and refined grain products. Adolescents in the U.S. evidence these trends as well. The 1999 Youth Risk Behavior Surveillance System identified that only 23.9% of students had eaten a minimum of 5 fruits and vegetables a day during the week before the survey. There is, however, no indication of significant lack of protein or calories in the diet except for certain high risk teens, such as chronic dieters or low income individuals.

Table I

Recommended Dietary Allowances, 1989, for Young Women, Pregnancy, and Lactation

Category	Age (years) or condition	Protein (g)	Vitamin A (ìg RE)	Vitamin E (ìg - TE)	Vitamin K (ìg)	Vitamin C (mg)	Iron (mg)	Zinc (mg)	Iodine (ìg)	Selenium (ìg)
Females	11-14 yr	46	800	8	45	50	15	12	150	45
	15-18 yr	44	800	8	55	60	15	12	150	50
	19-24 yr	46	800	8	60	60	15	12	150	55
Pregnancy		60	800	10	65	70	30	15	175	65
Lactating	1st 6 mo	65	1300	12	65	95	15	19	200	75
	2nd 6 mo	62	1200	11	65	90	15	16	200	75

Source: Food and Nutrition Board, National Academy of Sciences - Institute of Medicine, 1989 Recommended Dietary Allowance

Table II

Dietary Reference Intakes:
Recommended Dietary Allowances, 1989, for Young Women, Pregnancy, and Lactation

Category	**Calcium** (mg/d)	**Phosphorous** (mg/d)	**Magnesium** (mg/d)	**Vitamin D** (µg/d)	**Fluoride** (mg/d)	**Thiamin** (mg/d)	**Riboflavin** (mg/d)	**Niacin** (mg/d)	**Vitamin B_6** (mg/d)	**Folate** (µg/d)	**Vitamin B_{12}** (µg/d)	**Pantothenic Acid** (mg/d)	**Biotin** (µg/d)	**Choline** (mg/d)
Females														
9-13 yr	1,300*	**1,250**	**240**	5*	2*	0.9	**0.9**	**12**	**1.0**	**300**	**1.8**	4*	20*	375*
14-18 yr	1,300*	**1,250**	**360**	5*	3*	1.0	**1.0**	**14**	**1.2**	**400**	**2.4**	5*	25*	400*
19-30 yr	1,000*	**700**	**310**	5*	3*	1.1	**1.1**	**14**	**1.3**	**400**	**2.4**	5*	30*	425*
Pregnancy														
≤18 yr	1,300*	**1,250**	**400**	5*	3*	1.4	**1.4**	**18**	**1.9**	**600**	**2.6**	6*	30*	450*
19-30 yr	1,000*	**700**	**350**	5*	3*	1.4	**1.4**	**18**	**1.9**	**600**	**2.6**	6*	30*	450*
Lactation														
≤18 yr	1,300*	**1,250**	**360**	5*	3*	1.5	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*
19-30 yr	1,000*	**700**	**310**	5*	3*	1.5	**1.6**	**17**	**2.0**	**500**	**2.8**	7*	35*	550*

Note: This table presents Recommended Dietary Allowances in bold type and Adequate Intake in ordinary type followed by an asterisk(*).
Source: Food and Nutrition board, National Academy of Sciences - Institute of Medicine, 1997 and 1998.

QUESTIONS

Circle the letter of the correct answers.

1. Which motives are most likely to influence adolescents' food choices:

   a. desire to be accepted by peers

   b. food availability

   c. concern for optimal health

   d. desire to attain a certain body type

   e. desire to eat a well-balanced, nutritious diet because it will lead to long-term health

   f. taste

   g. busy school and social schedule

2. Name 3 nutrients likely to be deficient in an adolescent's diet.

Current recommendations suggest pregnant women increase their average energy intake by 300 calories each day during the second and third trimesters.

Energy Needs

There is great variability among adolescents in their growth rates and nutrient requirements. The greatest variability is in the requirement for energy. Energy is measured in terms of kilocalories, commonly called calories. What is best for one 13-year-old pregnant female may be very inappropriate for another. The requirement for energy will be influenced by activity level, body composition, growth status, age, and stage of pregnancy. Energy requirements are greater for pregnant adolescents than their non-pregnant peers. Current recommendations suggest pregnant women increase their average energy intake by 300 calories each day during the second and third trimesters. Young adolescents may require even higher energy intakes, particularly those who are underweight at conception, or physically active during pregnancy. The best assurance of adequate energy intake is appropriate weight gain.

Weight Gain

The total amount of weight gain recommended will depend on the adolescent's weight status before pregnancy. Use Body Mass Index (BMI) to determine the adolescent's prepregnancy weight category (refer to Prenatal Nutrition Module for weight gain recommendations for prepregnancy BMI).

Adolescents may hesitate to gain weight during pregnancy because of concerns about body shape or size. Evaluate the adolescent's body image as well as her attitudes about weight gain. Also inquire about family members' and partners' attitudes about weight gain to determine the type of support the adolescent has. Adolescent girls are typically concerned about their weight and are often resistant to weight gain. It may be helpful to explain that the weight gain consists of the weight of the fetus, the placenta, amniotic fluid, and expanded maternal tissues.

Protein

Protein needs increase during pregnancy (see Table I). The RDA for protein for adolescent females is about 45 grams per day. An additional 10-12 grams is recommended throughout pregnancy.

There is a simple guide for evaluating the adequacy of an adolescent's protein intake. Protein intake may be considered adequate under normal circumstances if: 1) calorie intake is sufficient to support optimal growth, and 2) protein represents around 15% of calorie input. These two conditions are easily met by a typical daily intake. For example, a 4 oz. hamburger on a bun, a peanut butter sandwich, and a pint of milk provide 56 grams of protein.

It is important that enough calories be consumed to ensure an adequate protein supply. If too few calories are ingested, the body will use protein for energy and the amount remaining may be inadequate to support the rapid tissue growth of adolescence. Some adolescents "crash diet" or greatly restrict their caloric intake for the sake of physical appearance or athletic competition. These individuals are at risk for protein deficiency. Adolescents from low income families, who are living on their own, or who exclude all animal products (such as eggs, dairy products, and meats) may also be at risk for protein deficiency.

QUESTIONS

True or False

1. _____ The dietary requirement for energy and protein in adolescence is greatest during the period of most rapid growth.

2. _____ Energy needs for the growing adolescent pregnant female are the same as for an adult pregnant woman.

3. _____ Because of individual variability in growth and activity, a wide range of caloric intake among adolescents is acceptable.

Fill in the blanks

4. An adolescent's protein intake is adequate if: the _____ intake is adequate and if _____% of the calories are supplied by protein.

True or False

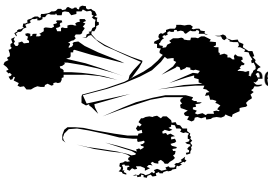
5. _____ Most adolescents should take a protein supplement (such as high-protein powdered drinks) since their protein requirement is too great to be met by diet alone.

6. _____ Consuming an inadequate supply of calories results in protein being used for energy, possibly leaving an inadequate supply to support optimal growth.

Vitamins

Recommendations for vitamin intake are estimated from recommended amounts from other age groups. As with energy and other nutrients, vitamin needs are more closely associated with growth demands than with chronological age. Mild inadequacies in vitamin intake have been reported to occur among adolescents due to poor dietary habits coupled with increased body needs. The vitamins most often consumed in short supply are vitamins A and C, due to a low intake of fruits and vegetables. Foods which are particularly good sources of vitamins A and C are listed below:

<u>Vitamin A</u>
carrots
spinach
cantaloupe
apricots
broccoli
greens (spinach, kale)

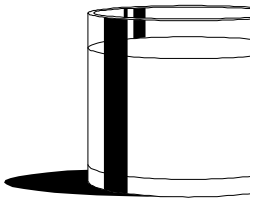


<u>Vitamin C</u>
oranges
en peppers
grapefruit
broccoli
strawberries

Minerals

<u>Calcium</u>

Adolescent females who have had low calcium intakes throughout childhood and adolescence may have insufficient stores to meet the needs of pregnancy. If the adolescent continues to consume a low-calcium diet during her pregnancy, fetal skeletal development and maternal skeletal integrity may be compromised.



The calcium intake of adolescents tends to fall below the daily recommended intake (DRI). Only 18% of females 9-19 years of age meet the dietary recommendation for calcium (DRIs are 1300 mg of calcium per day. For pregnant women 18 years or younger, the DRI is also 1300 mg of calcium a day. Adolescent females consume about 800 mg/day. Teens consume low amounts of calcium-rich foods. Soft drinks appear to replace milk. Low calcium intake can be associated with decreased bone mineralization leading to osteoporosis in later life.

Calcium is needed in large supply to furnish the building material for the rapidly growing bones of the teenager. A well-balanced diet that includes 5 servings of dairy products will supply enough calcium for maternal and fetal bone growth. Some teens, especially girls, think that milk is "fattening" and so they avoid it. For these teens, skim or lowfat milk, yogurt, and

cottage cheese are alternatives. Fish with edible bones, broccoli, calcium-fortified orange juice and soy milk, and corn tortillas also provide calcium. Teens at risk for low calcium consumption are late maturing females, those who restrict their food intake, and vegan vegetarians. Vegans are people who consume no animal products, including dairy products.

Iron

Low iron intake is a problem for female adolescents, especially those consuming vegetarian diets. It is also a problem for pregnant teens and competitive athletes. Data from national nutrition surveys indicate that only one-fourth of adolescent girls meet the RDA for iron. To meet their iron needs, they should be encouraged to eat good sources of iron such as iron-enriched whole grain breads or cereals, lean red meats, and dry beans.

The increased requirement for iron in adolescence is the direct result of the rapid expansion of iron-containing tissues, primarily the blood and muscles. The pregnancy RDA for iron is 30 mg/day, twice the level of non-pregnant adolescents. The recommendation is high early in adolescence and remains high throughout the teen years to ensure adequate iron stores in the body when entering puberty and to allow a margin of safety for individual variation in requirements. The female's requirement for iron remains high even after the teen years due to menstrual blood losses.

Zinc

Zinc affects protein synthesis and is essential for growth and sexual maturation. Zinc requirements also are high during adolescence. The RDA for zinc during pregnancy is 15 mg/ day. Younger teens who are still growing may have higher needs. Good food sources of zinc include lean meats, seafood, dry beans, fortified cereals, and nuts.

QUESTIONS

Circle the correct answer.

1. Which of the following pregnant individuals would most likely consume an adequate amount of calcium in their diet:

   a. adolescents who consume no dairy products
   b. adolescents who are strict vegans
   c. adolescents who consume at least 5 servings of dairy products per day
   d. late-maturing female adolescents who restrict their food intake out of concern for their figures

2. Name 3 food sources of calcium which you would suggest to a teenager.

   _____
   _____
   _____

True or False

3. _____ Iron needs during adolescence are high because of the rapid expansion of iron-containing tissues, such as blood and muscle.

4. Name 3 food sources of iron which you would suggest to a teenager.

   _____
   _____
   _____

5. The food group which contains especially good sources of vitamins A and C is:

   a. Dairy Group
   b. Meat/Protein Group
   c. Breads and Cereals
   d. Fruits and Vegetables

Eating Patterns of Adolescents

Skipping Meals

Teenagers may influence their nutrient intake by skipping meals. The prevalence of this habit has been substantiated by nutrition surveys. The Rand Youth Poll reported that 79% of adolescents skip meals (1990). The meal most often missed is breakfast followed by lunch. It has been shown that teenagers who regularly eat breakfast tend to have more adequate diets than those who miss breakfast once a week or more. Busy schedules, dieting, or a lack of food resources may lead to meal skipping. It should be emphasized to teenage girls that meal skipping is not a successful way to lose weight. Meal skippers often overeat at other meal times to compensate for the hunger they suffer throughout the day.

Common reasons for skipping breakfast include desire to sleep longer, lack of appetite, and lack of time. Give reasons why eating in the morning is important. Explain to pregnant adolescents that "you are more likely to keep your energy all morning if you have breakfast," "newborn babies need to eat every few hours. Before they are born they also need to eat on a regular basis and the only way they can get food is from you." Offer suggestions to help adolescents eat breakfast more often. For example, provide a list of quick, easy foods (such as leftover pizza, sandwiches, fruit with yogurt, hard cooked eggs, packets of peanuts and raisins).

Snacking

Although teenagers often skip meals, adolescents as a group tend to eat more frequently than other age groups. This is explained by the widespread habit of snacking. In one study, adolescents reported snacking from one to seven times per day (Bigler-Doughten & Jenkins, 1987). Consuming snacks can be a liability if the snacks are high in calories and low in nutrients and make up a large part of the diet. Intake of crackers, popcorn, pretzels, and corn chips has doubled among adolescent females over the past 20 years, with 35% of adolescent females choosing at least one of these snack foods daily. However, when chosen wisely, snacks can improve the teen's overall dietary intake. In the eyes of many adults, snacks are synonymous with "junk foods" that will spoil the appetite for meals. Surveys show, however, that teenagers who eat more often, at least 3 times per day, and who have greater variety in their diet tend to have more adequate diets than those who eat less fre-

quently and limit their food choices. Snacks offer frequency and variety of nutrients to the diet.

Admittedly, many foods commonly eaten as snacks, such as potato chips, soda pop, and candy, are indeed low-nutrient foods and should be eaten with less frequency. However, teenagers, when interviewed, also mention many highly nutritious foods as favorite snacks. Among these are milk, cheese, and ice cream. These dairy products are good sources of calcium and their use as snacks should be encouraged (ice cream less often than lowfat milk because of its high sugar and calorie content). Other nutritious snacks that can be recommended include lowfat yogurt, fresh fruits, salads, fruit and vegetable juices, dried fruit, raw carrots, pretzels, bagels, enriched or whole grain cereals, hard-cooked eggs, sandwiches, cheese and crackers. These foods represent good sources of the nutrients most often lacking in the teen's diet.

QUESTIONS

True or False

1. _____ Teenagers who regularly eat breakfast tend to have a more adequate diet than those who miss breakfast one or more times per week.

2. _____ Snacks can supply a significant amount of essential nutrients in the teenage diet.

3. List at least 3 foods that are appropriate snack items for teenagers.

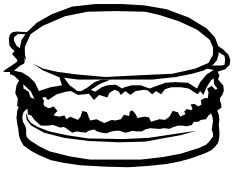
   _____
   _____
   _____

Fast Foods

Another common dietary habit among adolescents is frequent eating of snacks and meals at "fast food" restaurants. Meals at such restaurants are commonly high in calories, saturated fat, and sodium and may be low in vitamins A and C, iron, calcium, folate, and fiber. On average, 40-50% of the calories in a fast food meal are from fat. The entrees are, however, good sources of protein, calories, and B vitamins.

A significant portion of the calories in fast food meals comes from beverages such as soft drinks and milk shakes. Encouraging teenagers to choose alternative drinks such as lowfat milk, fruit juices, or ice water would save calories and even add nutrients.

Fried side dishes, such as french fries and onion rings, are high in saturated fat, calories, and sodium. Suggest to the teen that they have these items only occasionally or at least choose a smaller serving size. Choosing a salad instead of fries can reduce fat and will add vitamins A and C. However, the teen must be cautious about the amount of dressing added to the salad. Many fast food restaurants offer items that are lower in fat and calories than the common burger and fries combination. The more nutrient-rich foods tend to be more expensive than the high-fat or high-sugar foods.



Fast food consumption is a reality. WIC staff can provide adolescent participants with better decision-making skills to help them make more nutritious choices. Encourage teenagers who eat at fast food restaurants frequently to include foods in their diet that will compensate for the nutrients lacking in fast foods. Suggest the consumption of foods such as lowfat milk, yogurt, dark green leafy vegetables, whole grain breads and cereals, and fruits or fruit juices. Bringing a piece of fruit from home can help to "round out" the fast food meal. Many fast food restaurants have fruit juices available on their menu. Suggest they share their french fries with a friend, and order a grilled chicken sandwich, bean burrito, cheese pizza, or baked potato instead of a burger, fried chicken, or fish sandwich.

QUESTIONS

True or False

1. _____ A significant portion of the calories in fast food meals comes from the beverages commonly served, cola and milk shakes, and it would be wise to substitute milk or water as a drink.

2. List 3 foods that may be included in the diet to compensate for the nutrient inadequacies of fast food meals.

   _____
   _____
   _____

True or False

3. _____ Many entrees from fast food restaurants are good sources of protein.

4. _____ Beverages such as colas or milk shakes, and side dishes such as french fries and onion rings, contain many nutrients and are low in calories.

Vegetarianism

The vegetarian diet, including its many variations, is becoming increasingly popular among young people. The reasons for adopting vegetarianism are varied and include such factors as concern for health, popularity of the diet among peers, animal rights, ecological concerns, rebellion against parents or "society," religious beliefs, and economic concerns. In general, vegetarian adolescents as compared to omnivores:

- consume more fruits and vegetables, legumes, nuts, starchy foods, and vegetable protein products;
- consume fewer dairy products and eggs, “junk” foods, and meat products;
- have higher intakes of fiber;
- generally have lower intakes of total fat; and
- have slightly lower protein intakes.

A vegetarian diet can provide adequate nutrients. Only certain "fad" forms of vegetarianism, such as the Zen macrobiotic diet, which advocates eating solely brown rice, pose a danger to nutritional status. The major forms of vegetarianism are the lacto-ovo vegetarian (eats eggs, dairy, and plant foods) and the vegan vegetarian (eats only plant foods). With some knowledge and planning either of these eating styles can be nutritionally adequate.

All of the essential vitamins and minerals are present in adequate amounts in a well-balanced and varied vegetarian diet. The possible exception is vitamin B_{12}. Since this vitamin is found exclusively in animal foods the total vegan may need to take a vitamin B_{12} supplement. There is no reason to discourage adolescents from adopting a vegetarian style of eating, as long as they do so carefully. Followed wisely, a vegetarian diet should include soy products, whole or enriched grains, dried peas and beans, nuts and seeds, as well as dairy products and eggs for the lacto-ovo vegetarian. For a complete discussion of vegetarianism refer to the books Diet for a Small Plant or Becoming Vegetarian.

Many young people today advocate a "natural foods" diet. This may or may not mean vegetarianism. Although there is no strict definition, a natural foods diet generally implies the avoidance of products containing refried sugar, refined grains, and chemical additives and the preference for consuming most foods in their whole or unprocessed state. Again, as long as the teen is eating a variety of foods, there is no reason to discourage a preference for "natural foods." In fact, eating foods that have been minimally processed, such as whole grains or raw (or lightly cooked) vegetables, is preferable for many reasons. However, these foods may be purchased in any grocery store; it is not necessary to shop at a "health foods" store where prices tend to be high.

Special Nutritional Concerns of Adolescence

Eating Disorders

More than half of junior and senior high school females consider themselves overweight and have attempted a diet.

Concerns about weight and food intake often appear for the first time during adolescence, particularly among females. Many adolescent females are dissatisfied with their weight. More than half of junior and senior high school females consider themselves overweight and have attempted a diet. Preoccupation with weight, early dieting, and exercise may trigger eating disorders such as anorexia nervosa or bulimia. Disordered eating behaviors are common, occurring in 10-20% of adolescent females. While specific causes of eating disorders remain a mystery, clinicians agree that sociocultural, neurochemical, and psychological factors are all contributing factors. "Normal" adolescent dieting can be the start of an eating disorder when intensified by adolescent turmoil, low self and body concept, and poor identity of self. Poor pregnancy outcomes are associated with eating disorders. Potential risks associated with eating disorders in the prepregnancy period, during gestation, and after delivery, include:

- low pre-pregnant weight;
- inadequate gestational weight gain;
- excessive weight gain (binge eating);
- decreased nutrient stores; and
- decreased bone density.

Treatment of eating disorders requires a multidisciplinary approach with nutrition falling under intervention and education. It has been suggested that eating disorder families have more disturbed interactions than normal families, but there isn't clear evidence that this is the cause of the eating disorder. Treatment should involve parents to encourage healthy family interactions.

Treatment for eating disorders may need to be long term, individual and/or group sessions and include both medical care and psychotherapy. WIC's role is to help identify the possibility of eating disorders and make appropriate referrals for the participant to seek help in their community.

Anorexia Nervosa

Anorexia nervosa is typified by self-starvation, extreme weight loss, preoccupation with food, an extreme fear of weight gain, and may include a rigid exercise routine. The teenager with anorexia strives for perfection and control over her life and associates gaining weight with being out of control. During growth phases, weight gain is normal and necessary for teens. Part of the recovery from the disease is gaining an understanding of growth as a normal physical process.

Anorexia nervosa can be life threatening. It can cause delays in puberty, development, and heart and kidney problems. In teens, anorexia nervosa can cause decreases in bone mass and increased risk of fractures.

Bulimia

Bulimia, like anorexia, involves a preoccupation with food and body weight. However, bulimia manifests itself in secretive binge-eating episodes followed by self-induced vomiting or other forms of purging. The disease usually occurs in later adolescence after a series of unsuccessful weight loss attempts. Individuals with bulimia usually appear to be near normal weight and are very difficult to identify.

Bulimia is associated with fluid and electrolyte imbalances. Repeated vomiting may cause damage to the esophagus, swelling of the salivary glands, and erosion of tooth enamel. While bulimia is less likely to affect growth and development than anorexia, over the long term the bulimic may suffer decreased bone density, leading to osteoporosis.

Treatment of bulimia involves helping the client establish regular eating patterns. The individual with bulimia needs to learn to eat an adequate amount of food without experiencing the dread of weight gain.

Self-Check #7

Adolescent Nutrition Module

QUESTIONS

True or False

1. _____ A vegetarian diet that is varied and well planned cannot be nutritionally adequate for adolescents.

Fill in the blank.

2. The vitamin that is present only in animal products that may need to be supplemented in the diets of total vegans is _____.

3. Anorexia is an eating disorder that affects teenage girls and is characterized by extreme weight loss and a distorted body image.

4. List 3 signs of anorexia nervosa that may be used for early detection.

_____
_____
_____

True or False

5. _____ Bulimia manifests itself in secretive binge-eating episodes followed by self-induced vomiting or other forms of purging.

6. Name 2 health problems associated with bulimia.

_____
_____

Obesity

The 1999 Youth Risk Behavior Surveillance System identified that approximately 10% of adolescents were overweight (i.e., having a BMI >95th percentile by age and sex) and 16% were at risk for becoming overweight (i.e., having a BMI >85th percentile and <95th percentile by age and sex). Obesity poses not only serious long term health risks but places the teenager at social and psychological disadvantage as well. Obese adolescents typically have a poor self image and are poorly regarded by their peers.

Many genetic and environmental factors are involved in the development of obesity among adolescents. Diet and physical activity are strongly associated with body weight.

Different methods are used to diagnose obesity clinically. WIC currently uses BMI to determine body fatness. BMI is a better predictor than body weight alone. Skin-fold thickness is a common method of diagnosing body fatness. Calipers are used to measure the thickness of a layer of subcutaneous fat. The measurement is compared to a table of standards. Certain people shouldn't use BMI as an estimate for body fatness– competitive athletes and body builders, whose BMI is high due to large amounts of muscle.

Obese adolescents, particularly girls, are readily tempted to follow "fad diets" that promise rapid weight loss with little or no effort. Such diets, in general, are nutritionally inadequate and do little toward restructuring the lifestyle that led to obesity in the first place. These diets should be avoided by any age group, but adolescents are particularly vulnerable to their ill effects since they are going through a period of rapid growth. WIC staff can share some guidelines to postpartum, non-breastfeeding teens that may be used in judging weight reducing diets, such as:

- Should provide at least 1200 calories per day.
- Should provide essential nutrients in adequate amounts.
- Should provide satiety.
- Easily adaptable to family needs (i.e., a pattern that is realistic for the whole family).
- Relatively inexpensive.
- Can be adhered to for long periods of time.
- Should provide for long-term changes in eating patterns/ behaviors.

One approach used in the treatment of obesity is called behavior modification. This treatment method attempts to identify the motives behind eating and then to shape and modify the response to those motives. For a complete discussion of this technique, refer to the book Slim Chance in a Fat World.

Adolescents who have a family history of coronary heart disease or who have been found to have elevated blood cholesterol levels themselves have special nutritional needs. Experts feel that these adolescents should restrict their dietary intake of cholesterol and saturated fats. They should also maintain a healthy weight, quit smoking or do not start, and adopt a regular plan of exercise.

Substance Use and Abuse

Normal adolescent developmental patterns put them at high risk for experimentation with alcohol, tobacco, and other drugs. Alcohol and tobacco use are strong predictive factors of further drug use, early and unprotected sexual activity, driving accidents, and school failure (Hawkins, Lishner, Catalano). Long-term dependence on any drug will have serious effects on the growth and development of adolescents. Substance use in pregnancy negatively affects pregnancy outcome at all stages of gestation. Substance use throughout pregnancy is associated with the greatest risks. Drug use and addictions are complex problems and are beyond the scope of this text. Refer to the Level I Module, Providing Drug Abuse Information and Referrals in the WIC Program for more detailed information. Since pregnancy and substance abuse are closely related in adolescent populations, the severe consequences should be made clear to the pregnant teen. Referral to programs dealing specifically with substance abuse may be necessary.

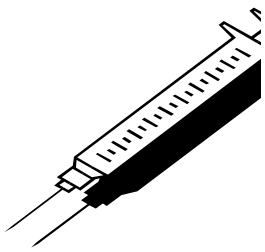
Alcohol

Alcohol is the drug most frequently used by U.S. teens. A national survey of 12th grade females found that 82% had tried alcohol. This drug adversely effects growth and development of adolescents. Ethanol, the alcohol found in beer, wine, and hard liquor, disturbs may of the body's metabolic processes. Malnutrition can occur even in relatively well-fed drinkers because ethanol hinders the absorption, alters the metabolism, and increases the excretion of many nutrients.

Cigarettes

Teenagers may be placing themselves at increased nutritional risk by choosing to smoke cigarettes. Many studies have shown that cigarette smoking is associated with lowered levels of vitamin C in the blood. Teens who choose to smoke should include good sources of vitamin C in their diet, such as oranges, grapefruit, broccoli, green peppers, and fruit juices. Cigarette smoking has also been reported to depress appetite, an undesirable situation for the rapidly growing teenager.

Other Illicit Drugs



While illicit drug use among U.S. adolescents has reportedly declined since the 1970s, still 3 of every 5 teens report that they have tried marijuana, amphetamines, and cocaine (Johnson, O'Malley & Bachman, 1987). Drug users and abusers face many nutrition-related problems including:

- spending money for drugs instead of food,
- losing interest in food during a "high,"
- temporary suppression of appetite by the drug,
- lack of routine eating habits,
- increased incidence of infectious diseases, and
- altered nutritional status caused by drug intake.

	Self-Check #8		Adolescent Nutrition Module

QUESTIONS

True or False

1. _____ All individuals with a BMI >95% age-for-sex are overly fat.

2. Name 1 method used to identify obesity.

_____

True or False

3. _____ Obesity is caused simply by eating excessive amounts of food.

4. _____ Lack of exercise can contribute to the development of obesity.

Fill in the blank.

5. Cigarette smoking is associated with a decreased level of _____ in the blood.

6. Name 3 nutrition-related problems associated with drug use.

_____
_____
_____

Athletics

Pregnant adolescent athletes may present special nutrition concerns. Their diet, as for any adolescent, should contain adequate amounts of calories and nutrients. However, due to their higher activity level, athletes may need additional calories to support optimal weight gain and fetal growth. The appetite generally serves to increase food intake adequately. Contrary to popular belief, high-protein diets and protein supplements do not enhance athletic performance or muscle building capacity. Weight loss should not occur with exercise during pregnancy.

Athletes need an adequate supply of water to prevent dehydration (10-12 cups/day). Clear, light-colored urine is an indicator of adequate hydration. Being physically active in the cooler hours of the day may help prevent dehydration. Small, frequent sips of water during an athletic event is the best way to replenish sweat losses.

Postpartum athletes who attempt rapid weight loss are at particu larly high nutritional risk. Weight and diet concerns of some teen athletes such as those in ballet, gymnastics, and running, may lead to eating disorders (Loosli & Benson, 1990). Calorie restrictions are associated with low intakes of calcium, vitamin B-6, folic acid, iron, magnesium, and zinc. Iron deficiency is common among female runners because of low intake, low stores, and iron losses. Also low calcium intake is of special concern because this is the time when peak bone mass forms. Low calcium intake and amenorrhea leads to stress fractures and osteoporosis later in life.

Acne

The appearance of skin problems, blackheads, and pimples is a dreaded occurrence experienced by many adolescents. Some unfortunate teenagers are affected with a severe case of the condition, acne vulgaris. Acne and related skin problems are thought to result from the rapid hormonal changes occurring in adolescence which, in turn, affect the sebaceous glands of the skin.

Contrary to popular belief, adolescent skin problems are <u>not caused</u> by eating chocolate, fried foods, or soda pop. Good skin care, regular exercise, and consumption of a well-balanced diet will help lessen the severity of skin problems. Medical treatment may be sought in particularly severe cases.

	Self-Check #9		Adolescent Nutrition Module

QUESTIONS

True or False

1. _____ The adolescent athlete may need additional amounts of liquids and calories.

2. _____ High-protein diets and protein supplements are a necessary part of athletic conditioning.

3. _____ Pimples, blackheads, and acne are caused by eating chocolate, fried foods, and soda pop.

4. Name 3 problems that will help lessen the severity of skin problems.

   _____
   _____
   _____

5. What is a good indicator if someone is consuming adequate amounts of water?

   _____

Teen Parenting

Children of adolescent mothers are at risk for developmental deficits (Furstenberg, Brooks-Gunn & Chase-Lansdale, 1989). Many of the developmental differences between children of adolescent mothers and children of adult mothers can be accounted for by socioeconomic status (Garcia-Coll, Vohr, Hoffman & Oh, 1986). Variations are also seen between adolescent families (Luster & Debow, 1990). These findings suggest that other variables or combinations of variables contribute to the poor developmental outcomes of the children of adolescent mothers.

Adolescent families are affected by distinctive characteristics which impact parenting and subsequent child development. Characteristics include: learning ability, cognitive readiness for parenting, psychosocial adjustment and health of the mother, interacting with characteristics of the infant, and quality of the social environment (Schellenbach, Whitman & Borkowski, 1992). In the following section, each characteristic will be described.

Characteristics of the Mother

Learning Ability and Education

One-half of all adolescent mothers drop out of school prior to their pregnancy or after their baby is born (National Research Council, 1987). Adolescents who become parents are likely to be poor students and delayed at least one grade prior to dropping out (Linares, Leadbeater, Katof & Jaffe, 1991; Debolt, Basley & Kreutzer, 1990). Research has shown that only about one-third of those mothers who dropped out of high school go back to complete their secondary education (Hardy, Welcher, Stanley & Dallas, 1978). Clearly, diminished education has long-term effects not only on cognitive readiness for parenting, but on the socioeconomic status of the teen parent family as well.

Cognitive Readiness For Parenting

When adolescent mothers lack knowledge of child development they tend to display unrealistic expectations of child behavior. If the adolescent mother expects too much too soon she may respond in an aggressive manner (Reis, Barbera-Stein & Bennett, 1986). Adolescent mothers may not understand their role in child development and may not provide adequate stimulation for the child. Adolescent mothers frequently do not understand how

present behavior will have a lasting impact on the development of their child.

Psychosocial Adjustment

Certain psychosocial characteristics are associated with effective parenting. These characteristics include maturity, strong sense of self, high self-esteem, well-defined roles and problem solving ability (Schellenbach, et al., 1992). This list very nearly parallels the developmental tasks of adolescence. There is clearly a conflict of roles when parenthood occurs during adolescence. Rather than becoming independent from parents, the adolescent often becomes more dependent economically and emotionally. Support from parents may be critical to the developmental outcome of the child, but may have serious developmental consequences for the adolescent mother (Luster & Dubow, 1990). When compared with non-parenting adolescents, adolescent mothers experienced lower self-esteem, poor problem solving abilities, and ineffective coping skills (Passino et al., 1993).

Characteristics of the Child

Infants born to adolescent mothers are more likely to be low birth weight or preterm than those of adult mothers (Loris et al., 1985). These risks are related to maternal nutritional status and prenatal care as discussed under maternal characteristics. Low birth weight infants experience respiratory and digestive illness and often require prolonged hospitalization (Mercer, Hackley & Bostrum, 1984). Illness places stress on parent-child interaction and increases parental burden. Costs of health care add an additional financial burden to the teen parent family.

Parent-Child Interaction

A number of studies have shown differences between mother-infant interactions of adolescent mothers and adult mothers. Adolescent mothers tend to be less responsive to their infants and provide less verbal and emotional stimulation. Compared to adult mothers, adolescents show less involvement with their infants and are less sensitive in their mothering responses (R. Culp, M. Culp, J. Osofsky & H. Osofsky, 1991). Studies have shown a relationship between mother-child interactions and non-organic failure to thrive (Bousha & Twentyman, 1984). Adolescent mothers are reported to use fewer vocalizations while interacting with their infants during feeding (Culp, Appelbaum, Osofsky & Levy, 1988).

The children of adolescent mothers are at risk of nutritional deficits because of socioeconomic and environmental factors contributing to parenting and the home environment. The feeding relationship may have an impact on the nutritional status of the child. Adequate nutrition is critical for children because the first years of life are a time of rapid growth and development. Brain growth and development are especially vulnerable to iron deficiency (Filer, 1990). In studies of infants, iron was the nutrient most often lacking (Martinex & Ryan, 1985).

The children of adolescent mothers are at risk of nutritional deficits because of socioeconomic and environmental factors contributing to parenting and the home environment.

Social Support

Social support is often a key element in successful adolescent families. Support may come from the family of origin, a male partner, or the community. However, the presence of a grandparent or male partner in the home of an adolescent family does not always indicate a supportive relationship and should be viewed with caution. When a relationship is truly supportive it may help to buffer risks associated with adolescent parenting by providing guidance, reinforcement, assistance with daily tasks, child care, and economic assistance (Schellenbach et al., 1992).

Younger adolescent mothers are likely to live with their family of origin. The maternal grandmother usually provides most of the support in the form of child care, child stimulation, and child care information (Cooley & Unger, 1992). Research has shown that the continued presence of the adolescent family in the home of the grandmother after the child has reached one year of age can produce negative outcomes (Cooley & Unger, 1991). This is likely to be related to conflict over parenting between the adolescent mother and grandmother.

Older teen mothers are more likely to receive social support from a male partner. These teens have usually completed more years of school and are more likely to have a stable relationship with the male partner. This combination of factors has been shown to improve child outcome but cannot be related specifically to the male partner (Cooley & Unger, 1991).

Social support can also be provided to the adolescent family by the community. This may include peers, neighbors, churches, or religious organizations. Social service programs and agencies may provide service such as medical care, day care, parenting classes, and home visits.

Counseling and Nutrition Education for Adolescents

Dietary Screening for the Pregnant and Postpartum Teen

When screening the diet of the pregnant or postpartum teen for inadequacies, you will use the Colorado WIC Program's Daily Food Guide Screening Tool (pictured on the next page). The information obtained from the client's 24-hour Food Recall form shown on page 37 will be compared to amounts and types of foods recommended on the screening tool.

After determining in which food groups the client's diet is low, you will use the Food Guide Pyramid for Pregnant and Breast-feeding Women shown on pages 38 and 39 or the Food Guide Pyramid for Postpartum Women shown on pages 40 and 41 to provide nutrition education to the client.

FOR STAFF USE ONLY

DAILY FOOD GUIDE SCREENING TOOL
ADULT

	Recommended Minimum # of Servings		
	Preg & BF Adult PP Teen	Preg & BF Teen (Ages 11-17)	Adult PP
DAIRY PRODUCTS 1 c milk (whole, 2%, skim) ⅓ c powdered milk ½ c canned evaporated milk 1½ c cottage cheese 1 c yogurt 1½ c ice cream/frozen yogurt 1½ oz natural cheese 2 oz processed cheese 1 c buttermilk	**4**	**5**	**3**
MEAT/MEAT ALTERNATIVES **Animal Proteins** 2 eggs 2 hot dogs ½ c. tuna salad 2-3 oz cooked meat, fish, poultry, game, (1 small hamburger, 1 chicken leg, 1 lean chop, 2 slices meat) 4 oz lunch meat **Vegetable Proteins** ¼ c peanut butter ½ c nuts 1 c tofu (8 oz) 1 c cooked beans, lentils, dried peas ½ c seeds (sunflower, pumpkin, sesame)	**3**	**3**	**3**
BREAD AND CEREAL 1 slice bread ½ c cooked hot cereal ¾ c cold cereal ½ c rice/noodles/pasta 4-5 crackers ¼ c wheat germ 1 tortilla (6") 1½ c popped corn ½ English muffin/bagel 1 roll/muffin ½ hot dog/hamburger bun 1 pancake or waffle (5")	**6**	**6**	**6**
FRUITS AND VEGETABLES *Recommended daily servings include 1 serving from the Vitamin A group and 1 serving from the Vitamin C group. 1 serving equals 1 c raw leafy and **2** c chopped vegetables, 1 medium, **:** c juice, **2** c cooked or canned, or **3** c dried.*	**5**	**5**	**5**
Vitamin A Fruits and Vegetables apricots, broccoli, cantaloupe (¼), carrots, chili sauce (red), collards, greens, kale, mango (½), papaya, pepper (1 c red), pumpkin, spinach, sweet potato, winter squash	**1**	**1**	**1**
Vitamin C Fruits and Vegetables broccoli, Brussels sprouts, cantaloupe (¼), chili sauce (green), grapefruit, orange, orange/grapefruit juice, papaya (½), pepper (½ c raw green/red), strawberries (½ c), vitamin C enriched juices	**1**	**1**	**1**
Other Fruits and Vegetables apple, avocado, bamboo shoots, banana, beets, bok choy, cabbage, cauliflower, celery, corn, cucumber, grapes, grape juice, green beans, lettuce, mushrooms, onion, peach, pear, peas, pineapple, potato, potatoes, fried, raisins/dried fruits, sprouts, tangerine, tomato, turnips, watermelon, zucchini	***Count in Total Daily Servings***		
OTHER FOODS AND BEVERAGES soft drinks, fruit drinks, Kool-aid, coffee/tea, cookies/cakes, pies/pastries/donuts, sugar, candy, jam/jelly, butter/margarine, mayonnaise, oil, salad dressing, gravy, sour cream, sausage, bacon, chips/ pretzels, pickles	***No Minimum Recommendation*** ***Provides Minimal Nutrition*** ***High in Fat & Calories*** ***(count as <u>other</u> foods)***		

Adapted from a nutrition guide for pregnant women developed by Ventura (CA) County Health Department. Reproduced by permission.

COLORADO WIC PROGRAM 24-HOUR FOOD RECALL

NAME AGE DAY/DATE

Please write down everything you (or your child) eat or drink on a typical day. If yesterday was a typical day, you may write down those foods. Begin with the first thing eaten after getting up until the last thing eaten before bed time. If you or your child get up and eat or drink during the night or eat or drink anything between meals, please list those foods too. Tell us as much as you can about how the foods were prepared (baked, fried, raw, etc.) and how much you eat in cups, teaspoons, or ounces.

TIME	FOOD OR DRINK EATEN	AMOUNT	FOR STAFF USE ONLY Dairy Prod.	Meat/ Meat Alt.	Bread/ Cereal	Fruits/ Vegs	Vit. A	Vit. C	Other
Total Servings Eaten									
Suggested Servings Needed									
Adequate (A) or Inadequate (I)									

Assessed by:_____ (Staff)

WIC #425 (rev. 5/

Development and Capacity for Learning

By age fourteen most adolescents will become increasingly able to take on a third-person perspective and will begin to be able to anticipate future consequences of present actions. They may be able to make decisions but might not be able to put skills to use in a variety of real life situations. There will be an increased ability to plan, apply knowledge, and problem solve. Adolescents begin to be able to monitor their own thinking (Keating, 1990).

We cannot assume however, that all adolescent mothers are critical thinkers. If adolescents have not acquired fundamental knowledge and skills they will not be able to develop effective formal operational thought. It is important to remember that adolescent mothers often have diminished school achievement and may not have fundamental skills. Stress factors must also be considered. An adolescent mother may be under considerable stress, making it difficult for her to attend to what is being said to her.

Counseling Techniques

It is obvious that the adolescent represents an age group with special dietary requirements, practices, and concerns. However, teens can be a difficult audience to approach with nutrition counseling. For many teenagers, nutrition is a subject of relatively low interest. The following guidelines should be considered in counseling the adolescent:

1. Be friendly, informative, and open to any questions adolescents wish to ask. Solicit the teenager's input! Scale your help specifically to their tastes, habits, and lifestyle.
2. Younger teens (ages 12-15) are generally not able to connect the importance of today's eating habits with future health. Appeal to the younger adolescent's desire to look and feel good.
3. Older teens are more able to appreciate their own vulnerability to nutritional deficiencies and disease. A message that takes into account their maturity in making decisions for themselves is more likely to be successful.
4. Provide information that the adolescent needs to know, rather than nice to know. Adolescents who desire more information can ask questions for more details.
5. Suggest alternative food choices that are good tasting and apt to be accepted and liked by peers.

6. Suggest snacks that are good sources of the nutrients most often lacking in the adolescent diet.

7. Suggest to parents that "junk foods" not be kept in the house. Recommend keeping high-quality foods available for snacks since teenagers tend to eat what is readily available and good tasting.
8. Reassure teenagers that differences in body shape and appearance are acceptable and that they do not need to conform to a uniform standard of appearance.
9. Involve the adolescent to engage in an interactive session. For example, ask the adolescent how she would rate her eating for pregnancy–on a scale of 1-10. Find out why she rated it as she did and build on nutrition education from there.

Breastfeeding

Adolescent mothers are less likely than adult mothers to breastfeed their infants. This may be related to lack of support from family, friends, boyfriend, school and/or work; lack of knowledge; lack of confidence in their ability to breastfeed or quit smoking and/or drinking;, fear of ability to follow a healthy diet; embarrassment; and inconvenience.

Health Concerns After Pregnancy - Birth Control

Approximately thirty percent of adolescent mothers have a second pregnancy within two years of their first (National Research Council, 1987). Frequent pregnancies add to the economic, social, and health burdens already being faced by the young mother. The adolescent mother should be encouraged to talk to her physician about obtaining and using adequate and reliable birth control.

QUESTIONS

True or False

1. _____ Children of adolescent mothers are at risk for developmental deficits.

2. _____ Most adolescent mothers go back to school and finish their high school education.

3. _____ Infants born to adolescent mothers are more likely to be low birth weight or preterm than those of adult mothers.

4. Review to yourself the guidelines for counseling the adolescent. See how many you can remember.

Case Study

To complete this study of adolescent nutrition, it will be helpful for you to try your hand at applying the information you have read by doing a case study.

Read the case study below and then answer the questions that follow.

Samantha Schroeder registers for prenatal care in this, her first pregnancy, at 15 weeks gestation. She is a 17 year old, Anglo American, 5'6" tall, and weighs 105 pounds. She states her usual non-pregnant weight is 104 pounds.

Samantha eats an occasional bowl of cereal for breakfast, but usually skips this meal. At lunch she has french fries, hamburger, and a large Pepsi from McDonald's. On the way to school after lunch, she usually grabs some corn chips, candy, or Hostess cupcakes from the drug store. Her favorite snacks include Krackel bars, Milky Way, little bags of caramels, or Hershey Kisses. After school Samantha will have a milk shake or chocolate dip cone.

Samantha lives with her grandmother and 4 younger children. Grandmother usually does the cooking for dinner and Samantha generally dislikes the selection. Often she will go to the local Dairy Queen and get a hot dog and coke.

Samantha does not drink milk because it is fattening. Her favorite vegetables are corn, green beans, and salads.

Case Study Questions

1. Consider Samantha's frequent meals at fast food restaurants, such as McDonald's and Dairy Queen.

   What recommendations could you give her regarding:

   a. her choice of beverage.

   b. what foods she might eat at home to complement the deficiencies of the fast food meals.

2. What advice could you give Samantha about drinking milk?

3. What do you think about Samantha's choice of snacks?

4. What would you advise Samantha about weight gain during her pregnancy?

CONGRATULATIONS!! You have completed the module on Adolescent Nutrition. Good Job!

Please fill out the Post Test stapled at the back of the module and return it to your supervisor.

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Answers to Self-Checks
Adolescent Module

Self-Check #1

1. a. To allow for maximum growth and development.
   b. To allow for maximum participation and success in school, athletic, and social activities.
2. False
3. True
4. False

Self-Check #2

1. a, b, d, f, g
2. folate; vitamins A, E, B_6; minerals calcium, iron, zinc

Self-Check #3

1. True
2. False
3. True
4. Calorie (energy); 15%
5. False; a well-balanced diet that meets the recommended servings from all the food groups will meet the protein requirement.
6. True

Self-Check #4

1. c
2. Milk, cheese, yogurt, cottage cheese (these can be whole or lowfat), calcium-fortified orange juice, calcium-fortified soy milk, corn tortillas
3. True
4. Any 3 of the following: lean meats, fortified breads and cereals, dried beans, whole grain breads and cereals, eggs, peanut butter
5. d, Fruits and Vegetables

Self-Check #5

1. True
2. True
3. Any 3 of these: milk, cheese, ice cream, fresh fruits/vegetables, bagels, hard-cooked eggs, sandwiches, whole grain cereals.

Self-Check #6

1. True
2. Milk, dark green leafy vegetables, fruit or fruit juices
3. True
4. False

Self-Check #7

1. False
2. Vitamin B_{12}
3. True
4. Extreme weight loss, over-concern with food and dieting, compulsive exercise and activity.
5. True
6. Damage to the esophagus, swelling of salivary glands, erosion of tooth enamel, decreased bone density.

Self-Check #8

1. False
2. Body mass index (BMI) or skin-fold caliper measurements.
3. False
4. True
5. Vitamin C
6. Any of these: spending money on drugs versus food; losing interest in food; appetite suppression; lack of routine eating habits; increased incidence of infections; altered nutrition status.

Self-Check #9

1. True
2. False
3. False
4. Consumption of a well-balanced diet, good skin care, regular exercise.
5. Their urine is clear and light in color.

Self-Check #10

1. True
2. False
3. True
4. Check the list on pages 43-44. How did you do? You should have been able to list at least 3 out of 9.

Case Study Answers

1. a. The large Pepsi that Samantha usually has at McDonald's (or the coke at Dairy Queen) provides a large number of calories and no nutrients. Suggest a carton of milk instead which has about the same number of calories and many nutrients, particularly calcium and protein that Samantha needs in large supply. Another alternative you might suggest is to have a cheeseburger and water as beverage. (The cheese has similar nutrients to the milk, although in lesser amounts.) She might also be able to obtain fruit juice at certain fast food restaurants

   b. Fast food meals are generally low in vitamins A and C, iron, folate, and fiber. Foods that would complement these deficiencies include milk, dark green leafy vegetables, and fruit or fruit juices. Since one of Samantha's favorite vegetables is salad, she could easily include dark green leafy lettuces in her salads. Favorite fruits could be kept around as snacks. Samantha needs 4-5 servings of dairy products per day because she is a pregnant teenager. Milk and dairy alternatives should be strongly encouraged. Cheese on hamburgers or homemade milk shakes with milk or yogurt could be suggested as an alternative to drinking milk. Yogurt could also be suggested for snacks or desserts.

2. Samantha doesn't drink milk because it is "fattening." It might help to show her the calorie content of milks versus soda pop.

8 oz. serving	Calorie content
whole milk	160
2% milk	145
skim milk	90
cola	97

   Whole milk and 2% milk do have more calories than cola, but not many more and skim milk has less. Considering the calorie cost per nutrient, all forms of milk are far superior to cola.

3. Samantha's avoidance of milk because it is "fattening" is a clue that she is concerned about weight gain and was, in fact, underweight prior to conception indicating poor nutrient stores. However all the foods she chooses for snacks are high in calories and low in nutrients. Appeal to Samantha's concern for her figure and suggest fresh fruits and vegetables and lowfat yogurt as snacks because they are low calorie foods. (At the same time, they are much higher quality foods nutritionally.)

4. Samantha should gain a minimum of 28 pounds during her pregnancy. The fact that she has gained only 1 pound at 15 weeks of gestation indicates that she may be purposely restricting her weight gain. Try explaining to her that the 28 pounds represents the necessary products of pregnancy and is not merely excess adipose tissue. She will lose the majority of the weight upon delivery and the rest can be lost soon after delivery, particularly if she breastfeeds her infant. Because Samantha is not gaining weight appropriately, she is considered high risk and should be referred to the WIC nutritionist or nurse for counseling.